



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,325	07/27/2001	Mitsuru Hiura	862.C2315	5938

5514 7590 11/04/2003

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

DUDDING, ALFRED E

ART UNIT PAPER NUMBER

2853

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,325

Applicant(s)

HIURA, MITSURU

Examiner

Alfred E. Dudding

Art Unit

2853

-- Th MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-22 is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) Z.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 10, and 11 are rejected under 35 U.S.C. 102(a) as being anticipated by Nishi et al. (U.S. 6,100,515 A).

Nishi et al. discloses a scanning exposure apparatus, and a semi-conductor device manufacturing method, Column 1, lines 19 – 25, and Figure 1, clearly seen, comprising a master stage for scanning a master, Figure 1, element 12; a substrate stage for scanning a substrate, Figure 1, element “WST”, and positioning means for relatively positioning the substrate and the master, Figure 1, element 22B (drive unit for positioning substrate stage, element 22C, drive unit for positioning master stage).

Nishi et al. teaches the claimed inventions of a scanning velocity determination means for determining a scanning velocity so as to maximize the number of substrates that can be exposed per unit time and transfer means for supplying/recovering the substrate to/from said substrate stage, Column 4, lines 33 – 54.

3. Claims 12, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al. in view of Clarke et al. (U.S. 5,621,216 A).

Nishi et al. fail to teach the use of a local area network (LAN) connected to the semi-conductor manufacturing device.

Clarke et al. discloses connecting a local area network to the manufacturing apparatuses; and the step of performing data communication of information about at least one of the manufacturing apparatuses between the local area network and an external network outside the semiconductor manufacturing apparatuses, Figure 1, element 11 ("PWS", personal work stations) and Column 3, lines 17 – 23.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the LAN of Clarke et al. with the invention of Nishi et al. to quickly input different jobs and control manufacturing operations. The motivation/suggestion to do so is given by the '216 patent, Column 3, lines 15 – 17, a personal computer (PC) that synchronizes the writing of the mask and the running of calibration and diagnostic programs.

Allowable Subject Matter

4. Claims 2 – 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

a. A search of prior art did not cite an apparatus wherein a scanning velocity determined from an exposure illuminance and a required exposure amount: V_d , and a scanning velocity at which the number of substrates that can be processed per unit time is maximized, which is determined from the transfer pattern size, a layout of the transfer pattern on the substrate, said transfer means, said master scanning means, said substrate stage scanning means, and said positioning means V_t as claimed in the limitations of claims 2 and 5 – 9.

Art Unit: 2853

b. A search of prior art did not cite an apparatus wherein a lowest one of a maximum scanning velocity determined from apparatus performance: V_{max} , a scanning velocity determined from an exposure illuminance and a required exposure amount: V_d , scanning velocity determined from the minimum number of pulses which is required for integration to ensure a uniform exposure amount: V_p , and scanning velocity at which the number of substrates that can be processed per unit time is maximized, which is determined from the transfer pattern size, a layout of the transfer pattern on the substrate, said transfer means, said master scanning means, said substrate stage scanning means, and said positioning means V_t as claimed in the limitations of claims 3 and 4.

5. The following is a statement of reasons for the indication of allowable subject matter:

a. The primary reason for the allowance of claim **18** is the inclusion of the limitation of a scanning exposure apparatus for sequentially transferring a pattern on a master to each shot area on a substrate through a projection optical system having scanning velocity determination means for determining a scanning velocity on the basis of a length of the pattern in a scanning direction.

b. The primary reason for the allowance of claims **19** and **20** is the inclusion of the limitation of a scanning exposure apparatus for sequentially transferring a pattern on a master to each shot area on a substrate through a projection optical system having scanning velocity determination means for determining a scanning velocity on the basis of a length on the shot area which is scanned at a constant velocity.

c. The primary reason for the allowance of claim **21** is the inclusion of the limitation of a scanning exposure apparatus for sequentially transferring a pattern on a master to each shot area on a substrate through a projection optical system, having a controller for controlling

Art Unit: 2853

scanning of the stage at a scanning velocity so as to maximize the number of substrates that can be exposed per unit time, wherein the scanning velocity for controlling the scanning of the stage by said controller is determined from a plurality of velocities including a velocity so as to maximize a time period from a start of scanning of a shot area to an end of scanning.

d. The primary reason for the allowance of claim **22** is the inclusion of the limitation of a scanning exposure apparatus for sequentially transferring a pattern on a master wherein the scanning velocity determination means determines, as a scanning velocity in an actual exposure apparatus, a lowest one of a maximum scanning velocity determined from apparatus performance (V_{max}); a scanning velocity determined from an exposure illuminance and a required exposure amount (V_d); and a scanning velocity at which the number of shots that can be processes per unit time is maximized, which is determined from the shot size (V_t). It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught, or suggested by the prior art of record which makes these claims allowable over the prior art.

Response to Arguments

6. Applicant's arguments filed 30 July 2003 have been fully considered but they are not persuasive. Applicant's argument regarding claims 1, 10, and 11 in that the Nishi et al. reference controls a scanning speed as not to exceed an upper limit rather than controlling a scan speed for maximizing a throughput based on information about the substrate. The Nishi et al. reference cites scanning a substrate "without lowering the throughput..." (Column 2, line 21).

Art Unit: 2853

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alfred Dudding whose telephone number is (703) 308-6082. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier, AU 2853, can be reached at (703) 308-4896. The fax phone number for this Group is (703) 872-9306. The examiner's fax phone number is (703) 746-4390 (unofficial correspondence only).

Alfred Dudding

90
10-10-03


Stephen D. Meier
Primary Examiner